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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/812,529 | 03/20/2001 | Koichiro Tanaka | SEL 246 | 2316 |

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02/12/2003

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EXAMINER

BOOTH, RICHARD A

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,529

Applicant(s)

TANAKA, KOICHIRO

Examiner

Richard A. Booth

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 is/are allowed.
- 6) ☒ Claim(s) 14-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, applicant's submission filed on 12-27-02 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-17 and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080 in view of Yamazaki et al., U.S. Patent 5,627,084.

Yamazaki et al. shows the invention substantially as claimed including forming a non-single crystalline silicon film, for example, an amorphous silicon film 102 (see col. 3-lines 1-14) over a substrate; irradiating the amorphous semiconductor film with a first laser beam, for example, an excimer laser to form a first crystalline semiconductor film, and irradiating the amorphous semiconductor film with a second laser beam, for example, a YAG laser to form a second crystalline semiconductor film (see col. 4-line 51

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to col. 5-line 6). Furthermore, Yamazaki et al. also teaches that the above device can be used in a LCD device (see col. 1-lines 9-12). Additionally, it is well known that excimer lasers commonly operate in a range of approximately 308nm.

Yamazaki et al. '080 is applied as above but lacks anticipation of the second laser having a wavelength of from 370-650 nanometers, for example, a second harmonic of a YAG laser, and the semiconductor device being part of a cellular phone, video camera, digital camera, projector, goggle type display, a personal computer, a DVD player, an electronic book, or a portable information terminal. With respect to the various devices, the examiner takes official notice that it would have been obvious to utilize the semiconductor device formed in the '080 patent in any of these devices since all the devices mentioned above utilize such a device. Regarding the wavelength of the second laser, Yamazaki et al. '084 discloses a second harmonic of a YAG laser being usable for annealing semiconductor layers (see col. 3-lines 46-54). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a second harmonic of a YAG laser as the second laser in the primary reference of '080 because the '084 patent shows this as being a suitable wavelength for the annealing of semiconductor layers.

Claims 18-22 and 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,365,080 in view of Yamazaki et al., U.S. Patent 5,627,084 as applied to claims 14-17 and 23-30 above, and further in view of Kato et al., U.S. Patent 5,589,406.

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Yamazaki et al. '080 and Yamazaki et al. '084 show many features of the invention but fail to expressly disclose patterning to form islands after the laser crystallization.

Kato et al. discloses laser annealing to crystallize a semiconductor layer followed by patterning to form islands (see col. 16-lines 45-65). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Yamazaki et al. '080 modified by Yamazaki et al. '084 so as to perform laser annealing and subsequently pattern the islands because Kato et al. shows this to be a suitable method of making a thin film transistor array.

Allowable Subject Matter

Claims 1-13 are allowed.

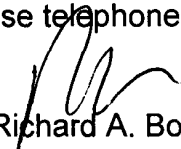
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is 308-3446. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 308-7724 for regular communications and 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.



Richard A. Booth
Primary Examiner
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February 8, 2003